UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,826	10/07/2005	Satoshi Yasui	Q90673	9465

23373 7590 03/20/2008

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
STEELE, JENNIFER A	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
03/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,826	YASUI ET AL.	
	Examiner	Art Unit	
	JENNIFER STEELE	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2007*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-16 and 18-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-16 and 18-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Referential Figures 1A, 1B, 2A and 2B and the characters details in these figures. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the islands in the sea weave of claim 13 and the triple layer woven or knit fabric of claim 15 must be shown or the feature(s) canceled from the claim(s). The referential drawing submitted are incomplete as stated in paragraph 1 above. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claim 1-5, 7,9,12,16 and 18-20 rejected under 35 U.S.C. 103(a) as obvious over Doi et al (US 6,403,216) in further view of Ulmann's Encyclopedia of Industrial Chemistry article titled Polyesters by Horst Kopnick posted online 6/15/2000.** Doi teaches a synthetic fiber with moisture-absorbing/releasing property and exhibits high elongation and high stretch recovery characterized in that it has moisture absorption ratios of 0.5 to 4% by weight. Doi teaches the synthetic fiber maintains a high strength at break of an elastic fiber component also in the state of having absorbed moisture, and can be used for manufacturing a stretch fiber fabric product that is comfortable by blending with another fiber material (ABST). Doi teaches the synthetic fiber has an elongation at break of 300% or more and an elastic recovery of 70% (col. 4, lines 10-12). The moisture absorbing/releasing property of the high elongation and high stretch-recovery synthetic fiber is adjustable by blending a desired amount of a compound having an amount water absorption ratio. Doi teaches a high stretch/high elongation fiber can have a desired amount of moisture absorption (col. 4, lines 29-47). Doi teaches polyurethane type and polyether-ester type synthetic fibers obtained by ordinary melt-spinning and there is no limitation in the water absorption resins to be blended or water adsorption components to be graft-polymerized. Doi teaches the synthetic fiber according to the present invention may be mixed with other materials in accordance with the use thereof, in which there is not limitation in kind, form and size thereof. For example, the material includes natural fiber, or synthetic fibers such as

polyester or nylon and further elastic fiber having not moisture absorbability. A spun yarn mixed spun with natural fiber, an enabled mixed yarn mixed with fiber having different shrinkage or high strength. A twisted union yarn, a composite false twisted yarn or a double feed type air jet textured yarn may be used (col. 14, lines 58-67, col. 15, lines 1-10). Doi teaches a woven fabric, a weft knit and a warp knit structure can be produced of these yarns. Doi teaches structures where the moisture absorbing fiber may be mixed with other materials and fibers such that the other fibers have different shrinkage or higher strength (col. 15. line 1). Doi teaches knit structures wherein the moisture absorbing fiber is used as the back thread of a half tricot knit or laid in via a back thread guide of a power net or satin structure (col. 15, lines 25-31). Doi teaches the synthetic fiber can be used in a form of bare yarn knit to form knitting loops together with another fiber yarn or may be converted to a composite yarn (col. 15, lines 40-42). Doi teaches the synthetic fiber can be used in the warp and weft yarns or just as the weft yarns (col. 15, lines 50-53). Therefore Doi teaches a woven or knitted fabric containing two types of yarns different from each other in self-elongating property upon absorbing water. Doi teaches a polyether-ester type synthetic fiber is one having hard segment including for example aromatic polyester such a polytetramethylene terephthalate, polytrimethlene terephthalate or polyethylene terphthalate and soft segment including aliphatic polyether glycol such as polytetramethylene glycol or polypropylene glycol (col. 13, lines 39-47). Doi differs from the current application and does not teach a polyetherester fiber produced from polybutylene terephthalate and polyoxyethylene glycol blocks.

Ulmann's Encyclopedia of Industrial Chemistry article titled Polyesters by Horst Kopnick posted online 6/15/2000 teaches it is known in the art that polyetherester is comprised of rigid crystalline and soft amorphous segments wherein the rigid segments generally consist of an aromatic polyester (e.g. PBT) and the soft segments consist of an aliphatic polyether (e.g. polyethylene glycol).

It would have been obvious to one of ordinary skill in the art to employ a polyether-ester fiber comprised of polybutylene terephthalate and polyethylene glycol motivated to produce an elastic fiber suitable for fabrics that comfortable and moisture absorbent.

As to claims 1-3, 12 and 18 Doi differs from the current application and does not teach the property of A/B ≤ 0.9, the property of self-elongation of yarn(%)=[(Lw-Ld)/(Ld)]x100, the property of difference in elongation (E_1-E_2) and the property of air permeability and change in roughness. As Doi teaches the structure and materials of the current application it is presumed that fabric of Doi would have the same properties as the claimed invention. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02

As to claims 4 and 5, Doi teaching knit and woven structures wherein a composite or mixed yarn are combined in parallel to form yarn loops and wherein in the combined yarns form at least one of warps and wefts as stated above in paragraph 3.

As to claims 7, Doi teaches a composite yarn of a the moisture absorbing synthetic fiber and one of other fibers that include synthetic or natural fibers that do not have the moisture absorbing and elongating properties of the synthetic fiber of the invention.

As to claim 9, Doi teaches using another yarn in addition to the invented moisture absorbing, elongated yarn, can be of polyester (col. 9, lines 44).

As to Claim 16, Doi teaches embodiments with a knitted structure of yarn density satisfying the formula in claim 16. Doi teaches in example 13 a knit fabric of yarn density 75 course/in and 48 wale/in which is equal to 3600.

As to claim 19, Doi teaches woven structures where the synthetic fiber can be used in the warp and weft yarns or just as the weft yarns (col. 15, lines 50-53).

As to claim 20, Doi teaches a covered yarn wherein the absorbing synthetic fiber is covered by another yarn and Doi teaches mixing yarns and fibers to obtain a blended yarn.

4. **Claim 6 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Doi et al (US 6,403,216) in further view of Ulmann's Encyclopedia of Industrial Chemistry article titled Polyesters by Horst Kopnick posted online 6/15/2000 in further view of Chesebro, Jr. (US 5,095,548).** Doi differs from the current application

and does not teach alternating the composite yarn with the other yarn. Chesebro teaches a moisture control sock where moisture control characteristics are imparted to the sock by a hydrophobic yarn knit in plated relationship with the body yarn in partial courses extending throughout the sole and a hydrophilic yarn knit in plated relationship with the body yarn in partial courses extending throughout the instep (ABST). As to claim 5 and 6, the structure of Chesebro can be used in a woven fabric in that the parallel yarn relationship throughout the fabric and Chesbro changes the pattern of the yarns throughout the sock to provide different characteristics at different places in the sock in order to absorb moisture or allow moisture to evaporate (Fig. 4).
It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a knit structure of Chesebro incorporating two yarns of different moisture absorbing properties knit in parallel motivated to produce a fabric with moisture absorbing properties.

As to Claim 13,Doi differs from the current application and does not teach a fabric with areas of high moisture absorbing yarns and area of low moisture absorbing yarns. Chesebro teaches a sock with a knit pattern so as to have areas where the sock in hydrophobic and areas where the sock in hydrophilic as illustrated in Fig. 1-4. It would have been obvious to one of ordinary skill in the art to have employed a knit pattern in the fabric of Doi motivated to produce a fabric with varying moisture absorption properties throughout the fabric.

5. **Claim 10, 11, 21-24 rejected under 35 U.S.C. 103(a) as being unpatentable over Doi et al (US 6,403,216) in further view of Ulmann's Encyclopedia of**

Industrial Chemistry article titled Polyesters by Horst Kopnick posted online 6/15/2000 in further view of Dawson (US 6,770,579). Doi teaches a synthetic fiber capable of absorbing and disabsorbing moisture comprising a component capable of absorbing and disabsorbing moisture and a fiber-forming polymer. Doi teaches that the water absorbing yarn swells which would infer that it changes (col. 8, lines 4-52), however Doi differs and does not measure the change in the open areas that results from absorbing moisture. Doi differs from the current application and does not teach air permeability.

Dawson teaches a material which controls porous properties in relation to changes in local environment thus allowing fluids to pass through the film or material (ABST). Dawson teaches a material comprising at least two layers having different fluid absorption properties. Dawson teaches that the layers are cut to provide a plurality of close fitting flaps through the film or material. When the different layers absorb moisture at different rates and one layer swells, the strain differences between the layers caused by their different fluid absorption properties will cause the flaps to bend providing a plurality of openings in the layer (col. 1, lines 37-44). Dawson teaches a change in porous properties which is equated with permeability.

When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § § 2112- 2112.02

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a fiber that swells and changes dimension when absorbing

moisture in order to change the material or fabric motivated to produce a fabric that changes air permeability when the fabric is wet and when the fabric is dry.

As to claims 22-24 that are dependent on claim 21, these claims are drawn to statements of use and do not distinguish the claimed invention from prior art. However, Doi and Dawson both teach fabric for use in garments, sportswear and underwear.

6. **Claim 14 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Doi et al (US 6,403,216) in further view of Ulmann's Encyclopedia of Industrial Chemistry article titled Polyesters by Horst Kopnick posted online 6/15/2000 in further view of Safrit et al. (US 4,341,096).** Doi differs from the current application and does not teach a three layer fabric. Safrit teaches a three layer knitted fabric that provides cushioning and moisture absorbing characteristics. Safrit teaches inside and outside fabric layers of hydrophobic yarn and the intermediate layer of hydrophilic yarn. While Safrit teaches a moisture absorbing layer as the intermediate layer and moisture disabsorbing layers on the outside and the current application teaches the outside layers are the moisture absorbing layers, it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce a moisture absorbing fabric with three layers motivated to produce fabric that removes perspiration from the body and allows the moisture to evaporate into the air.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claim 1-24 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim1-20 of copending Application No. 10/548630. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications teach a fiber and fabric of two yarns in a knitted or woven structure wherein one yarn absorbs moisture and the other yarn does not.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

8. Applicant's arguments with respect to claim 1-7, 9-16, 18-24 have been considered but are moot in view of the new ground(s) of rejection. Applicant's submitted Referential Figures 1A and B and 2A and B which are not sufficient to overcome the previous Office Action objection to the drawings over claims 13 and 15.

9. Applicant's amended claims 13, 15 and 19 and cancelled claim 17 and the previous 35 USC 112 rejections have been withdrawn.

10. Applicant's arguments with respect to amended claim 1 and stated that claim 1 is characterized by the features at noted as Feature (A), Feature (B) and Feature (C) and it is this combination of (A), (B) and (C) that enables the resultant woven or knitted fabric to exhibit the performance when wetted. Examiner has presented new grounds of rejection with respect to Doi in view of the Kopnick to present that all of these features of claim 1 are present and known in the art and previously combined in the art. Wherein the dependent claim 8 has been incorporated into independent claim 1, the new grounds of rejection with respect to Doi more clearly presents that these features were known in the art.

11. Applicant's arguments with respect to are moot in view of new grounds of rejection. The previous 35 USC 102/103 rejection with respect to Umino has been withdrawn in view of amended claims.

12. Applicant's arguments with respect to Chesebro and that Chesebro teaches the feature that loops of hydrophilic and hydrophobic yarn have the same length and thus does not teach or suggest the present invention. Applicant arguments are not commensurate with the scope of the claims nor the scope of Chesebro. Chesebro teaches a plated knit structure wherein the yarns run parallel to one another. Chesebro is silent with respect to whether the yarns are the same length or a different length. Further Applicant is not claiming that yarns (1) and (2) are of different lengths. Applicant is claiming a "mean length of yarns (1)" and a "mean length of yarns (2)".

13. Applicant argues that Chesebro is silent as the hydrophilic yarns having a self-elongating property and does not teach or suggest the polyetherester elastomer fibers. Chesebro is not relied up for teaching a self-elongating property and is not relied upon for teaching a polyetherester fiber. Chesebro presents a finding that one of ordinary skill in the art could of employed the technique of plating the yarns to produce a moisture absorbing and disabsorbing structured fabric.

14. Applicant argues that Dawson is silent as to a water-absorbing layer having a self-elongating property when wetted with water and Dawson does not teach feature (A) and Dawson is silent with respect to features (B) and (C). Dawson is relied upon for teaching that fabrics and fibers can have a moisture absorbent property wherein the fiber and fabric changes dimension, porosity and air permeability and allows moisture to be removed from one side or surface to the other. This property of changing dimension is equated with self-elongating and therefore Dawson presents a finding that one of ordinary skill in the art could have employed a fiber that absorbs moisture and changes dimension in order to produce a fabric with improved properties for moisture removal with a reasonable expectation of success.

15. Applicant argues that Sufrit is silent with respect to features (A), (B) and (C). Sufrit is relied upon to teach that a triple layer knit fabric structure is known in the art and therefore presents a finding that one of ordinary skill could of employed the technique of a triple knit structure with a reasonable expectation of success.

16. Applicant's arguments with respect to Yamazaki and Toda are moot in view of new grounds of rejection.

17. Applicant's arguments with respect to combining the references are moot in view of new grounds of rejection.

18. The Obviousness Double Patenting rejection with respect to Application 10/548,630 is maintained as the claims from this application because both applications teach a fiber and fabric of two yarns in a knitted or woven structure wherein one yarn absorbs moisture and the other yarn does not.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

3/13/2008